

Circadian variation of tacrolimus disposition in liver allograft recipients.

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Abstract

The aim of this study was to characterize the circadian variation of oral tacrolimus disposition in 8 stable liver allograft recipients. In the steady state, a total of 23 blood samples was taken before and after tacrolimus administration during a 24-hr period and the pharmacokinetic parameters were compared. The area under the curve (AUC) of tacrolimus after the morning dose was significantly larger than after the evening dose (211 ± 43 ng x hr/ml [morning] vs. 179 ± 45 ng x hr/ml [evening], $P=0.02$). The time to peak (T_{max}) was significantly shorter after the morning dose than after the evening dose (1.6 ± 0.7 hr [morning] vs. 2.9 ± 0.6 hr [evening], $P=0.002$). The peak (C_{max}) was significantly higher after the morning dose than after the evening dose (32.2 ± 10.2 ng/ml [morning] vs. 19.1 ± 4.3 ng/ml [evening], $P=0.003$). However, the trough (C_{min}) was not significantly different between the morning dose and the evening dose (13.1 ± 3.9 ng/ml [morning] vs. 13.3 ± 4.4 ng/ml [evening], $P=0.4$). This study demonstrated that tacrolimus disposition in liver transplant patients was determined by administration time.